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TRUSTEES, OFFICERS AND STUDENTS

OF

The Lehigh University,

SOUTH BETHLEHEM, PENN.,

FOR THE YEAR 1874-75,

With the Plan of Organization and the Course of Instruction.

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THE LEHIGH UNIVERSITY,

Under the Auspices of the Protestant Episcopal Church.

ORIGIN.

During the year 1865, the Hon. Asa Packer, of Mauch Chunk, appropriated the sum of Five Hundred Thousand Dollars, and an eligible spot in South Bethlehem, for the purpose of founding an educational institution in the beautiful valley of the Lehigh, which should bear the name of THE LEHIGH UNIVERSITY.

DESIGN.

The purpose of the founder in making this munificent endowment was to provide the means for imparting to young men of the Valley, of the State, and of the Country, a complete professional education, which should not only supply their general wants, but also fit them to take an immediate and active part in the practical and professional duties of the time. The system determined upon introduces those important branches which have been heretofore more or less neglected in what purports to be a liberal education, and especially those industrial pursuits which tend to develop the resources of the country,—pursuits, the paramount claims and inter-relations of which natural science is daily displaying,—such as Engineering, Civil, Mechanical, and Mining; Chemistry, Metallurgy, Architecture, and Construction.

While the institution is intended to be of a polytechnic character, the preparatory instruction of three terms is designed to fit a young man to pursue any of the professional courses he may select.

Such an institution promises to be of peculiar benefit to the Lehigh Valley, and to the numerous other districts of Pennsylvania which are rich in mineral resources of many kinds, but its usefulness will not be thus limited; it is intended for the benefit of the whole country; the instruction which it affords will enable its graduates to play intelligent parts in exploring and developing the resources of all portions of the

United States, and in applying the various modes of transporting and interchanging them.

THE SITE.

It would be difficult to find, anywhere in this country, a locality for educational purposes which combines so many and such varied advantages as are concentrated on the site of The Lehigh University. Placed upon the gentle declivity of the Lehigh Mountain range in South Bethlehem, which, on that side, encloses the river valley, and in the midst of a noble park of forest trees, PACKER HALL, the principal University building, stands three hundred and ninety feet above tide-water, and has a magnificent, unobstructed view—over the Lehigh River and the town of Bethlehem—of the Blue Mountains, twenty miles distant.

FACILITIES OF COMMUNICATION.

The site is about half a mile from the Railroad Depot, which stands at the junction of the Lehigh Valley and North Pennsylvania Railroads, and which is on the same side of the Lehigh River. The facilities for reaching the institution are numerous and great. It is fifty-four miles from Philadelphia, by the North Pennsylvania Railroad; eighty-seven miles from New York City. by the Lehigh Valley and New Jersey Central Railroads; and it communicates by the Lehigh Valley Road, in the other direction, with the rich and rapidly developing central portions of Pennsylvania The Lehigh and Susquehanna Division of the New Jersey Central Railroad is on the left bank of the river from Easton to Scranton; and the Lehigh and Lackawanna Railroad, already in operation to Bath, and graded from that point the Wind Gap, when completed to Stroudsburg, will there connect with the Delaware, Lackawanna and Western Railroad.

The health of Bethlehem is proverbial. The air is pure and extremely invigorating. The water in the University grounds and buildings is excellent, and free from limestone. The swiftly flowing Lehigh does not produce those ailments which are found on the banks of larger and more sluggish streams.

THE UNIVERSITY BUILDINGS.

Packer Hall, named in honor of the founder, stands seven hundred feet back of Packer Avenue, the front limit of the University grounds. It presents an imposing façade of handsome stone. At the western extremity is a belfry tower, containing the President's room and the Archive room; at the eastern end is a large advanced wing, four stories high, in which are the lecture and recitation rooms. The central portion, eighty feet long, contains the chapel, library, and cabinets. The entire length of Packer Hall is two hundred and thirteen feet. In the grounds, descending the hill in *echelon*, are the houses of the President and Professors, handsome buildings, which comport architecturally with the great Hall. Situated on Packer Avenue, towards the eastern extremity of the grounds, stand Christmas Hall and Saucon Hall, large and commodious brick edifices, containing students' dormitories and a mess hall.

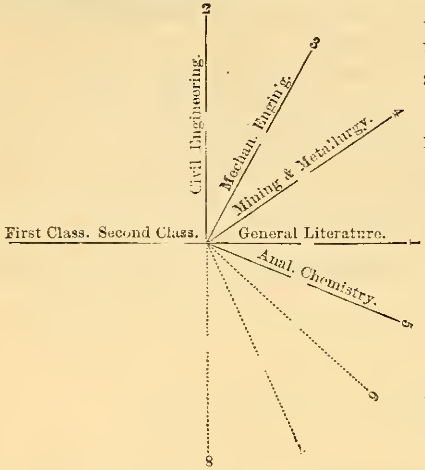
General Plan.

The courses and subjects of study are set forth and arranged in the following manner:

The First Three Terms:—These are devoted by all regular students to the study of those elementary branches in which every young man should be instructed, for whatever profession or business in life he may wish to prepare himself, viz.: Mathematics, Languages, Elementary Physics, Chemistry, Drawing, History, Rhetoric, Logic, Declamation, and Composition.

At the end of this time, having acquired this necessary knowledge, the student, following the bent of his own mind, and aided by his parents and professors, will be ready to select some special professional course, to which all his studies and efforts will be directed. To enable him to do this, there are several technical schools which branch off from the end of the common course. In each, the term of study is two and a half additional years, and the student, at his graduation in one of them, receives a special degree. By this means a young man is relieved from the overpowering and confusing study of those branches for which he has no taste, and pursues with cheerfulness the special course which he has selected, and for which he is suited by inclination and intelligence.

The students in the first two classes are called *First* and *Second Classmen.* Those in the schools are called *Junior* and *Senior Schoolmen.*



A simple diagram will show the relations of the classes to the schools.

The schools at present provided for are:

1. General Literature.
2. Civil Engineering.
3. Mechanical Engineering.
4. Mining and Metallurgy.
5. Analytical Chemistry.

This scheme will be expanded by the addition of other schools, as indicated by the dotted lines in the diagram. A few preliminary words will explain the nature of the schools.

1. THE SCHOOL OF GENERAL LITERATURE.—In this school regular students may continue Latin and Greek as *elective* studies. Rigorous attention will be paid to French and German Literature, Moral and Mental Philosophy, International Law. Civil Polity, Political Economy, and Christian Evidences. There will be extended practice in Composition in English, French, and German. The earlier instruction in French and German being designed to enable the student to read the language, their further study in this school is intended to make him acquainted with literary and scientific works, and to give him thus a comparative view of the entire field of Modern Literature.

Students who complete the studies of this school will receive the degree of B. A. (Bachelor of Arts). This school corresponds, with certain important differences, to the course long established in our colleges; many of the studies, however, being of a higher order.

2. THE SCHOOL OF CIVIL ENGINEERING.—The general scope of this school comprises the higher branches of Mechanics; Surveying; Topographical Engineering; the experimental examination, location, construction, and general management of canals, roads, and railways; Geodesy; Hydrography; with so much of Mechanical Engineering as refers to bridges, canal locks, and the special machinery and appliances used in erecting structures in Civil Engineering; grading, paving, watering, draining, and lighting towns. Students in Civil Engineering

will have their regular practice in the field, with the use of all necessary instruments, as a rigorous feature of the course.

To this school is also assigned instruction in Architecture and its applications.

The graduate in this school will receive the degree of C. E. (Civil Engineer).

3. The School of Mechanical Engineering.—The studies of this school will comprise the applications of Mechanics to machinery, in the construction of hand, steam and air engines; stationary, locomotive and marine engines; mills of various kinds, furnaces, foundries, rolling-mills; the manner of casting and working in iron and other metals, and of making and using the implements employed in these works; the construction and use of various manufactories; agricultural implements, and the machinery of the steading, water-works, gas-works, and warming and ventilating apparatus. Much attention will be paid to the execution of working drawings, and to the analysis and synthesis of machines. The proximity of numerous machine shops and foundries will enable the student to receive practical instruction in all branches of mechanical art; and visits to these will form an important feature in the school of Mechanical Engineering.

The graduate in this school will receive the degree of M. E. (Mechanical Engineer).

4. The School of Mining and Metallurgy.—The full course in this school comprises besides the mathematical, physical, chemical and literary studies necessary to all technical education, courses in Mining, Metallurgy, Geology, Mineralogy, Machines, qualitative and quantitative Analysis, Assaying, Blow-pipe Analysis, Topographical and Mine Surveying and Drawing. On account of the great number and scope of the studies necessary to the completion of the full course, it is four years and a half in length.

The graduate in this school, who has taken the full course, will receive the degree of E. M. (Engineer of Mines).

A partial course may be taken in this school by those who wish to pursue the study of Metallurgy. The course of Metallurgy includes the studies of the full course, except those of Mining and Surveying. More time is devoted to Chemical Analysis and Machines, than in the full course. The length of the course is four years.

The graduate of this school in the Metallurgical course will receive the degree of Metallurgist. (Metallt.)

A post graduate course has been arranged in this school, comprising courses in Mining, Metallurgy, Chemical Analysis and Blow-pipe Analysis, with supplemental courses in Geology and Mineralogy. Graduates in the school of Civil Engineering, by remaining one year and taking this course, may obtain the degree of E. M.

5. The School of Analytical Chemistry.—This school will comprise all the operations of chemical analysis, qualitative and quantative; of inorganic and organic chemistry; the spectroscope; the blow-pipe; assays of every kind; practical problems; the analysis of minerals; mineralogy, geology, metallurgy. The student will have constant practice in the analytical laboratory, under the direction of the Professor.

The graduate in this school will receive the degree of A. C. (Analytical Chemist).

This general statement has been made, divested of details,—which are presented in the programme of studies,—in order to give a clear view of the system, and of the relation sustained between the regular preparatory instruction in the classes, and the special professional instruction in the schools.

In the school of Analytical Chemistry, the study of Physics and Mechanics will be continued from the class years. In the schools of Civil Engineering, Mechanical Engineering, and Mining, the study of Physics, Mechanics, and Chemistry will be continued from the class years, in such proportion as may be necessary in each. It will thus appear that some of the studies will be the same for two or more of the schools, especially in the Junior Year. In the Senior Year the separate and specific subjects of each school will be studied.

The Chemical Laboratories and Lecture Room of the Lehigh University are not surpassed in excellence by any similar establishment in the United States, being supplied with all the modern improvements. The collection of specimens, apparatus, and models illustrating general and applied Chemistry are already important and rapidly increasing.

◆

Programme of Studies.

In arranging a programme of studies to suit the needs of education in the present practical age, it was necessary to scrutinize the former systems, and to eliminate those studies which have been long demonstrating themselves to be useless, if not injurious; in no way strengthening the foundations of that knowledge which the student is to use during his life. It became also necessary, before such changes could be judiciously made, to go back and seek for the true relation which the elementary or foundation studies bear to each other and the system.

It is remarked in the first place, that *Mathematics*, *Chemistry*, *Physics*, and *Language* form the basis of a practical education. These studies, while imparting practical knowledge, also secure that discipline of the mind which is essential to future progress.

1. The principles of *Mathematics* underlie the mechanical processes in nature and art. Too great prominence cannot, therefore, be given to this branch.

2. The study of *Chemistry* and *Physics* forms the basis of all analysis of nature. Chemistry affords the knowledge of the elementary substances and their combinations, and opens and illustrates the subjects of mineralogy and metallurgy; and therefore great importance is given to Chemistry as an *elementary* branch of learning. These sciences are particularly attractive to young minds, by the number of and variety of interesting experiments which are required to illustrate them.

3. It is hardly necessary to dwell upon the vital importance of Language as a means of study in all the arts, and of communication with men. A knowledge of the English language, as to its structure, and its varied uses in the accurate expression of thought, cannot be too highly esteemed. In order to secure this knowledge, Latin and Greek are studied in such a manner as to trace the English derivatives from those languages. French and German are taught with the same view, and further as a means of enabling the student to read the best treatises bearing upon his special studies in the University and his special pursuits hereafter. The student is also taught to speak these languages, that he may readily communicate with the numerous foreigners of every class, with whom he will certainly be brought into contact if he engage in industrial pursuits.

With these views, the following course of studies has been adopted, subject to such alterations and improvements as the progress of science may render necessary.

REQUIREMENTS FOR ADMISSION.

Applicants for admission into the First Class must be at least *sixteen* years of age, and must present testimonials of good moral character. They will be examined in the following subjects :

Mathematics.—Arithmetic complete ; Davies new Bourdon's Algebra, through equations of the second degree. First four books of Legendre's or Chauvenet's Geometry.

English.—Correct spelling, to be determined by writing from dictation in idiomatic English. Mitchell's School Geography. Parker's English Grammar.

Latin and Greek are optional studies, except for those students who design to pursue the course of General Literature.

Latin.—The Elements of Latin Grammar, with the Rules of Syntax. Four books of Cæsar's Commentaries.

This examination will be rigorous, and no student will be permitted to enter in full standing who is deficient in these branches.

General Course.

STUDIES OF THE FIRST CLASS.

FIRST TERM.

Mathematics.—Chauvenet's Geometry, complete.

Physics.—Chemical Physics ; Lectures.

English Studies.—Weber's Outlines of Universal History. Essays written extemporaneously under the eye of the instructor. Declamations in the Chapel.

Latin.—Review of Latin Grammar. Cicero's Epistles, Long's Edition.

Greek.—Greek Grammar.—Goodwin. Exercise Book.

German.—Otto's Grammar, with Lectures. Writing in German Letters. Translation of German into English.

Geometrical Drawing.—Warren's Drafting Instruments and Operations. Elements of Industrial Drawing.

SECOND TERM.

Mathematics.—Davies new Bourdon's Algebra, complete. Plane and Spherical Trigonometry and Mensuration; use of Logarithmic Tables.

Chemistry.—Lectures on the Principles of Chemistry. Inorganic: Fownes' Elementary Chemistry.

Descriptive Geometry.—Warren's Elementary Projections.

Drawing.—The use of the pencil and pen in free hand drawing. Geometrical Drawing.

English Studies.—Coppée's Elements of Rhetoric and Logic. Compositions carefully prepared. Declamations in the Chapel.

Latin.—Written exercises; Cicero, continued.

Greek.—Greek Grammar, and Goodwin's Greek Reader.

German.—Otto's Conversation Grammar, continued. Translation of English into German. Exercises in Conversation.

STUDIES OF THE SECOND CLASS.

FIRST TERM.

Descriptive Geometry.—General Orthographic Projections. Shades and Shadows. Linear Perspective: theory and plates.

Chemistry.—Lectures on Chemistry, with Laboratory Practice.

English Studies.—Lectures on English Literature. Compositions and Declamations.

Latin.—Livy, selections from vols. xxi. and xxii.

Greek.—Felton's Greek Historians.

German.—Translation of English into German. Affinity of English and German. Exercises in Conversation.

French.—Translations from English into French. Resumé of the rules of Syntax. Copious exercises in French Idioms. Collot's French Grammar, with a course leading from the construction of easy sentences to composition and conversation. Chapsal's Littérature Française.

Geodesy.—Chain and Compass Surveying—Theory and Practice.

Note.—Students who intend to pursue the course of General Literature will not take Drawing, but will use the time in Latin and Greek.

The Special Schools.

The following is presented as the general programme of instruction in these schools, subject to such modifications from time to time as the Faculty may deem expedient, with the approval of the Trustees:

Requirements for Admission.—Students who have passed successfully through the first three terms, may be admitted into any one of the Schools. All other applicants for admission into one of the Schools must pass a satisfactory examination on the subjects studied in the first three terms, and must be at least eighteen years of age.

SCHOOL OF GENERAL LITERATURE.

SECOND CLASS—SECOND TERM.

History.—The History of England (Hume's Students'). Lectures on American History.

English.—Composition and Declamation. Constitution of the United States. Cutter's Physiology.

Physics.—Mechanics, Heat, Electricity (Statics), and Magnetism.

French.—Fasquelle's French course. Reading: Robinson. Dialogues. Pieces for Recitation.

German.—Otto's German Conversation. Written Exercises. Prepared Conversation. Declamation.

Latin.—Horace: Odes, first Book. Arnold's Latin Prose Composition.

Greek.—Written Exercises. Felton's Greek Historians, continued.

JUNIOR SCHOOLMEN.

FIRST TERM.

Moral Philosophy.—Lectures.

English.—Lectures on the Science of Language: Müller and Farrar. Lectures on the Origin, Sources, and Growth of the English Language.

Physics.—Galvanism, Optics, and Acoustics.

French.—Fasquelle, Part Second: Syntax, with Written Exercises. Colloquial Exercises. De Lille: condensed French construction.

German.—Heyse: Deutsche Schul Grammatik. Composition. Declamation. Conversation.

Latin.—Arnold's Latin Prose, continued. Tacitus: Histories.

Greek.—Arnold's Greek Prose Composition. Homer's Iliad. Scanning.

SECOND TERM.

History.—Lectures on the Philosophy of History. The Constitutional History of the United States.

Intellectual Philosophy.—Sir William Hamilton (begun).

Physics.—Meteorology and Climatology.

French.—Poitevin: Grammaire Elémentaire (in French). Written Exercises. Declamation. Reading: Choix de Poésie par Jules Ponsard.

German.—Written Exercises. German Grammar, in German, continued. Classical Readings in systematic order: Conversation.

Latin.—Tacitus, continued.

Greek.—Arnold's Greek Prose, continued. Xenophon's Memorabilia of Socrates.

Mechanics.—Peck's.

SENIOR SCHOOLMEN.

FIRST TERM.

History.—History of France, in French.

Intellectual Philosophy.—Sir William Hamilton, continued.

Christian Evidences.—Lectures by the Professor.

French.—Poitevin: Grammaire Elémentaire, Syntax (in French). Composition: Conversation. Classical Readings in systematic order.

German.—The study of German will be continued in the Senior Year, by a course of German Literature and Classical Readings, given in German by the Instructor.

Latin.—Selections from the Satires and Epistles of Horace. Latin Metres.

Greek.—Demosthenes: Olynthiacs, and Phillippics.

Astronomy.—Norton's Descriptive Astronomy.

SECOND TERM.

International Law.—Kent, Woolsey, and Halleck.

Anatomy and Physiology.—Lectures, with Diagrams.

Political Economy.—Lectures.

French.—Systematic Readings. Composition. Lectures on French Literature, in French.

German.—As above.

Latin.—Cicero's Oration "Pro Cluentio."

Greek.—Demosthenes' "De Corona."

Note.—During the Senior Year, Italian and Spanish are elective studies, and may be substituted for Latin and Greek.

SCHOOL OF CIVIL ENGINEERING.

SECOND CLASS—SECOND TERM.

Mathematics.—Analytic Geometry.

Physics.—Heat, Electricity, and Magnetism.

French.—Same as in School of General Literature. French Compositions, and a course to enable the students to read the scientific French works used in the different schools of the University. Declamations in French.

Drawing.—Elementary Topographical Drawing: Maps of Farm Surveys.

JUNIOR SCHOOLMEN—FIRST TERM.

Mathematics.—Differential Calculus; Integral Calculus.

Moral Philosophy.—Lectures.

Physics.—Galvanism, Optics, and Acoustics.

Mineralogy aud Geology.—Dana's; with the use of the Museum.

French and German.—Throughout the term.

Geodesy.—Use and Ajustment of Field Instruments; Leveling; Triangulation; Topographical Surveying; Surveying with Stadia; Hydro graphy,—Theory and Practice.

Topographical Drawing.—Profiles; Plans of Trigonometrical Surveys; Contour Maps.

SECOND TERM.

Mechanics.—Weisbach's. Mathematical Theory of Motion; Science of Motion in General; Statics; Dynamics and Equilibrium of Bodies; Theory of Centre of Gravity and Moment of Inertia and Statics of Fluids.

Physics.—Meteorology and Climatology.

Stereotomy.—Cinematics; Elements of Machine Drawing; Drawings of Structures; Working Drawings.

Geology.—Technical Geology.

Geodesy.—Town Surveying; Plane Table Surveying; Mine Surveying; Theory and Practice.

French and German.—Throughout the term.

Topographical Drawing.—Colored Topography; Hydrographical Charts; Plans and Profiles of Mines; Town Maps; Maps of Landscape Designs and Surveys.

SENIOR SCHOOLMEN—FIRST TERM.

Applied Mechanics.—Elasticity and Strength of Materials, including Forms of Uniform Strength; Stability of Structures; Theory of the Arch; Elementary Machines; Practical Hydraulics.

Moral Philosophy.—Lectures.

Astronomy.—Same as in School of General Literature.

Christian Evidences.—Lectures by the Professor.

Stereotomy.—Stone Cutting; Working Drawings.

Geodesy.—Theory of the Reconnoissance; Preliminary and Location Surveys of Roads, Railroads, Canals, etc., together with Preliminary Field Practice in Staking out Curves, Sidings, etc.; Leveling with the Barometer.

SECOND TERM.

Applied Mechanics.—Theory of Trussed Frames; General Theory of Machines; Theory of the Steam Engine.

Constructions.—Materials of Structures; Dressing and Preservation of Materials; Foundations, Roofs, Bridges, and Culverts; Construction of Roads, Railroads, Canals, and Tunnels; Earth and Rock Work in general; Harbor and River Improvements; Farm and Town Drainage; Collection and Distribution of Water; Warming and Ventilation; Estimates of Quantities and Cost; Specifications; Designs for and Reviews of Special Structures.

Architecture.—Lectures.

Astronomy.—Practical Astronomy, as applied to Geodetic Surveys.

Chemistry.—Chemistry of Building Materials; Lectures.

Geodesy.—Field Work of the Preliminary Survey; Field Work of the Location; Comparison of Lines; Staking out Property Lines and Cross Sectioning; Setting Grade Stakes; Special Practice in Setting Lines and Staking out for Construction.

Topographical Drawing.—Plan and Profile of Preliminary Survey; Map and Profile of Location; Property Maps; Drawings illustrative of Final Estimates.

3. SCHOOL OF MECHANICAL ENGINEERING.

SECOND CLASS—SECOND TERM.

Same as in School of Civil Engineering.

JUNIOR SCHOOLMEN—FIRST TERM.

Mathematics.—Same as in School of Civil Engineering.

Physics.— " " " " "

Moral Philosophy.—Lectures.

Mineralogy and Geology.—As in School of Civil Engineering, with special extension of the former.

Metallurgy.—General Metallurgy.—As in School of Mining Engineering.

Stereotomy. — Warren's Machine Drawing,—Theory and Plates; Sketches and Working Drawings of Parts of Machinery.

French and German.—Throughout the Term.

Practical Mechanism.—Lectures in the Workshop; Hand Tools and Appliances.

SECOND TERM.

Mechanics.—As in Civil Engineering.

Physics.— " " "

Mineralogy and Geology.—Economic Geology.

Metallurgy.—Special Metallurgy.—As in School of Mining Engineering.

Stereotomy.—Cinematics; Sketches of Complete Machines; Finished and Working Drawings of Simple Machines.

French and German.—Throughout the Term.

Practical Mechanism.—Lectures in the Workshop: Machine Tools; Planing; Turning, etc.

SENIOR SCHOOLMEN—FIRST TERM.

Applied Mechanics.—As in Civil Engineering.

Astronomy.—Descriptive Astronomy; Attendance in the Observatory.

Machine Drawing.—Finished and Working Plans of Castings; Designs for Castings.

Christian Evidences.—Lectures by the Professor.

Practical Mechanism.—Lectures on Forging, Riveting, Pattern Making and Moulding, with Practice in the Workshop.

SECOND TERM.

Machines.—Hydraulic Engines; Steam Engines; Air Engines; Boilers, their Construction, Strength and Safety. Construction of Furnaces; Foundry, Machine-shop, Rolling Mill, and Bessemer Plants; Special Machines; Designs for and Reviews of Special Machines.

Chemistry.—Applied to the Arts. Lectures.

Practical Mechanism.—Setting up and Fitting; with Practice in the Workshop.

Machine Drawing.—Finished and Working Drawings of Special Machines.

4.—SCHOOL OF MINING AND METALLURGY.

SECOND CLASS—SECOND TERM.

Analytical Geometry,
Physics,
French,
German,
as in School of Civil Engineering.

Drawing.—Colored Topography; Conventional tints and signs; Structure Drawing.

Blow-pipe Analysis.—Practice.

JUNIOR SCHOOLMEN—FIRST TERM.

Mathematics,
Physics,
French,
German,
as in School of Civil Engineering.

Crystallography.—Lectures with practical exercises in the determination of models.

Chemistry.—Quantitative Analysis.

Drawing.—Machine Drawing.

SECOND TERM.

Mechanics,
Physics,
German,
as in School of Civil Engineering.

Metallurgy.—Metallurgical Processes; Furnaces; Refractory Building Materials; Combustion; Natural and Artificial Fuels; Metallurgy of Iron.

Mineralogy.—Descriptive Mineralogy, with practical exercises in the determination of minerals.

Chemistry.—Assaying. Quantitative Analysis.

Blow-pipe Analysis.—Practice.

Drawing.—Machine Drawing.

SENIOR SCHOOLMEN.—FIRST TERM.

Applied Mechanics, as in School of Civil Engineering.

Geology.—Lithology, with Practical Exercises in the Determination of Rocks.

Metallurgy of Zinc, Tin, Copper, Lead, Silver, Gold, &c.

Geodesy.—Use and adjustment of Field Instrument; Leveling; Triangulation; Topographical Surveying; Surveying with Stadia.

Drawing.—Contour Map.

Moral Philosophy.—Lectures.

SECOND TERM.

Mining.—Modes of Occurrence of the Useful Minerals; Exploration for Mineral Deposits; Examination of Mining Properties; Boring; Mining Tools; Machines and Processes; Timbering and Masonry; Methods of Exportation.

Geology.—Historic, Dynamic, and Eeconomic Geology.

Geodesy.—Plane Table and Mine Surveying.

Drawing.—Maps of Surveys.

Machines.—Theory of the Steam Engine.

Chemistry.—Quantitative Analysis.

FIFTH YEAR.—FIRST TERM.

Mining.—Transportation; Hoisting; Drainage and Pumping; Ventilation; Lighting, &c.; Mechanical Preparation of Ores; Coal Washing.

Chemistry.—Quantitative Analysis.

Machines.—Theory of Machines.

Astronomy.—Descriptive Astronomy.

5.—SCHOOL OF MINING AND METALLURGY.

(METALLURGICAL COURSE.)

SECOND CLASS.—SECOND TERM.

Analytical Geometry.
Physics, French, German,
Blow-pipe Analysis,
Drawing,
} as in full course.

Chemistry.—Quantitative Analysis.

JUNIOR CLASS.—FIRST TERM.

Mathematics,
French, German Physics,
Crystallography,
Chemistry, Drawing,
} as in full course.

JUNIOR SCHOOLMEN.—SECOND TERM.

Mechanics, *Physics,* *German,* *Metallurgy,* *Mineralogy,* *Chemistry,* *Blow-pipe Analysis,* *Drawing,*	as in full course.

SENIOR SCHOOLMEN.—FIRST TERM.

Geology, *Applied Mechanics,* *Machines,* *Moral Philosophy,*	as in full course.

Chemistry.—Quantitative Analysis.
Drawing.—Machine Drawing. Details of Metallurgical Apparatus.

SECOND TERM.

Geology.—Historic, Dynamic, and Economic Geology.
Machines.—Theory of the Steam Engine; Machines.
Drawing.—Finished and Working Drawings of Metallurgical Plant.
Chemistry.—Quantitative Analysis; Volumetric Analysis.

6. SCHOOL OF MINING AND METALLURGY.

POSTGRADUATE COURSE FOR CIVIL ENGINEERS.

FIRST TERM.

Metallurgy of Zinc, Tin, Copper, Lead, Silver, Gold, &c.
Mining.—As in full course of Mining and Metallurgy.
Chemistry.—Quantitative Analysis.

SECOND TERM.

Mining.—As in the second term of the senior year in the full course.

Metallurgy.—Supplemental course in Iron Metallurgy.

Geology.—Supplemental course in Historic Geology; Economic Geology.

Mineralogy.—Supplemental course in Descriptive and Determinative Mineralogy.

Blow-pipe Analysis.

Chemistry.—Quantitative Analysis; Assaying; Volumetric Analysis.

SCHOOL OF CHEMISTRY.

SECOND CLASS—SECOND TERM.

Same as in School of Civil Engineering, omitting Drawing and Analytic Geometry.

Chemical Preparations.—Including the Preparation of Chemical Compounds and the Purification of Chemicals by Distillation, Sublimation, Fusion, Crystallization, Precipitation, etc. Blow-pipe Analysis.

Assaying.—Including the Assay by the Dry Methods of Gold, Silver, Copper, Lead, Iron, and Tin Ores.

JUNIOR SCHOOLMEN—FIRST TERM.

Physics.—Same as in School of Engineering.

French and German.

Crystallography.

CHEMISTRY.

Chemical Philosophy.—Cooke's Chemical Philosophy. *Toxicology.*—Otto on Poisons. *Quantitative Analysis.*—Fresenius' Quantitative Analysis.—The following Analyses are executed by the Students:

1. Iron Wire (Fe.)
2. Potassic Dichromate ($Cr_2\ O_3$.)
3. Baric Chloride (Ba. Cl. H_2O.)
4. Magnesic Sulphate (MgO. SO_3. H_2O.)
5. Hydro Di-Sodic Phosphate (P_2O_5.)
6. Bronze (Cu. Sn. Zn.)
7. Rochelle Salt ($K_2O.Na_2O$.)
8. Volumetric Determination of Chlorine.
9. Acidimetry (HCl. H_2SO_4. HNO_3.)
10. Alkalimetry (KOH. NaOH. NH_4OH.)
11. Chlorimetry (Bleaching Powders.)
12. Silver Coin (Au. Ag. Pb. Cu.)
13. Zinc Ore (Zn.)

SECOND TERM.

Mechanics.—Peck.

Physics.—Same as in School of Civil Engineering.

Mineralogy.

Metallurgy.

German.

CHEMISTRY.

Quantitative Analysis.—Fresenius' Quantitative Analysis. The following Analyses are executed by the Students:

14. Copper Ore (Cu.)
15. Spiegeleisen (Mn.)
16. Lead Ore (Pb. S.)
17. Ilmenite (TiO_2.)
18. Iron Ore (Complete Analysis.)
19. Limestone (Complete Analysis.)
20. Coal (Volatile Matter,—Fixed Carbon, Ash, H_2O, S., P.)
21. Slag (Complete Analysis.)

Chemical Philosophy.—Cooke's Chemical Philosophy.

SENIOR SCHOOLMEN—FIRST TERM.

Astronomy.—Same as in School of General Literature.
Geology.—Dana's.
Moral Philosophy.—Lectures.

CHEMISTRY.

Quantitative Analysis.—Fresenius' Quantitative Analysis. The following Analyses are executed by the Students:

22. Guano (NH_3., P_2O_5. H_2O.)
23. Clay (Complete Analysis.)
24. Manganese Ore (MnO_2.)
25. Mineral Water (Complete Analysis.)
26. Pig Iron (Complete Analysis.)
27. Nickel Ore (Ni.)
28. Organic Analysis (C. H. O. N.)
29. Gas Analysis (Complete Analysis of Illuminating Gas.)

Organic Chemistry.—Wöhler's Organic Chemistry.

SECOND TERM.

Geology.—Dana's.
Chemistry Applied to the Arts.—Lectures.
Medical Chemistry.—Lectures.
Agricultural Chemistry.—Lectures.
Preparation of Thesis.

Remarks.—Students are charged for the chemicals and apparatus consumed. If the student is moderately careful, this expense need not exceed $50 per year.

Programme of Studies.

SHOWING THE NUMBER OF HOURS AND EXERCISES PER WEEK DEVOTED TO EACH SUBJECT.

In the following Programme of Studies the number of Exercises per week in each subject is indicated by the figure in parenthesis immediately following.

Two hours of Drawing, three of work in the Laboratory, or three of practice in the field are regarded as equivalent to a recitation or lecture of one hour's duration.

GENERAL COURSE.

FIRST CLASS.

First Term.—Geometry and Mensuration (5), History (3), Essays (1), German (4), Lectures on Chemical Physics (2), Elementary Drawing and use of Instruments (3).

Second Term.—Algebra and Trigonometry (5), Rhetoric and Logic (2), Essays (1), Chemistry (Lectures) (3), German (2), French (2), Drawing (2).

SECOND CLASS.

First Term.—Descriptive Geometry (Theory and Plates) (4), English Literature (2), Farm Surveying (Theory and Practice) (2), Chemistry (Lectures) (4), Chemistry (Work in Laboratory) (2), German (2), French (2).

SPECIAL SCHOOLS.

Students who have passed successfully through the General Course, may be admitted into any of the Schools. All other applicants for admission into any of the Schools must pass a satisfactory examination in the subjects included in the General Course.

SCHOOL OF GENERAL LITERATURE.

SECOND CLASS.

Second Term.—English Literature (2), Physics (3), History (Text and Lectures) (4), German (2), French (3), Greek (4), Latin (2).

JUNIOR CLASS.

First Term.—The Science of Language (3), Lectures on the English Language (1), Physics (5), German (3), French (2), Greek (4), Latin (2).

Second Term.—Literature (3), Philosophy of History (Lectures) (2), Mechanics (2), Physics (1), Mineralogy (1), German (3), French (3), Greek (3), Latin (3).

SENIOR CLASS.

First Term.—Metaphysics (1), Moral Philosophy (1). Constitutional Law (2), Descriptive Astronomy (3), Geology (2), German (2), French (2), Greek (2), Latin (2).

Second Term.—Metaphysics (3), International Law (3), Political Economy (1), Physiology (1), Geology (2), German (2), French (2), Greek (2), Latin (3).

NOTE.—In the Senior Class Latin and Greek are elective studies, and the alternates are Italian and Spanish.

SCHOOL OF CIVIL ENGINEERING.

SECOND CLASS.

Second Term.—Analytic Geometry (Cartesian and Abridged Notation) (4), Physics (3), German (2), French (3), Topographical Drawing and Map of Farm Survey (4).

JUNIOR CLASS.

First Term.—Adjustments of Instruments and Field Work (Theory and Practice) (3), Differential and Integral Calculus (4), Physics (5), French and German (2), Crystallography (Theory and Practice) (2), Drawing (Contour Map) (1).

Second Term.—Plane Table, Town and Mine Surveying (Theory and Practice) (3), Mechanics (4), Physics (1), Mineralogy (Theory and Practice) (3), Metallurgy (2), German (1), Drawing (Hydrographical and Town Maps (2), Structure and Machine Drawing (2).

SENIOR CLASS.

First Term.—Applied Mechanics (5), Stone Cutting (Theory and Plates) (2), Moral Philosophy (1), Descriptive Astronomy (3), Geology (3), Theory of Machines (1), Machine Drawing (2).

Second Term.—Steam Engine (2), Applied Mechanics and Constructions (5), Road Engineering and Descriptive Constructions (2), Rail Road Surveying and Map (2), Geology (2), Lectures on Architecture (1), Practical Astronomy (2).

NOTE.—By taking an additional year, graduates in the School of Civil Engineering may take the degree of Mining Engineer also, by going successfully through the following course:

First Term.—Metallurgy (4), Mining (4), Laboratory work (8).

Second Term.—Metallurgy (1), Mining (3), Geology (1), Economic Geology (1), Blow-pipe (2), Laboratory work (5), Mineralogy (1).

SCHOOL OF MECHANICAL ENGINEERING.

SECOND CLASS.

Second Term.—Analytic Geometry (Cartesian and Abridged Notation) (4), Physics (3), French (3), German (2), Blow pipe Analysis (1), Machine Drawing (3).

JUNIOR CLASS.

First Term.—Differential and Integral Calculus (4), Physics (5), French (1), German (1), Crystallography (Theory and Practice) (2), Theory of Mechanism (1), Shop Lectures (1), Machine Drawing (2).

Second Term.—Mechanics (4), Physics (1), Mineralogy (Theory and Practice) (3), Metallurgy (3), German (1), Theory of Mechanism (1), Shop Lectures (1), Machine Drawing (3).

SENIOR CLASS.

First Term.—Applied Mechanics (5), Moral Philosophy (1), Descriptive Astronomy (3), Geology (3), Theory of Mechanism (1), Theory of Machines (2), Shop Lectures (1), Machine Drawing (1).

Second Term.—Theory of Steam Engine (2), Machines (5), Geology (2), Theory of Mechanism (2), Shop Work (1), Machine Drawing (3).

SCHOOL OF MINING AND METALLURGY.

SECOND CLASS.

Second Term.—Analytic Geometry (Cartesian and Abridged Notation) (4), Physics (3), German (2), French (3), Blow-pipe (1), Colored Topography and Drawing (3).

JUNIOR CLASS.

Firt Term.—Differential and Integral Calculus (4), Physics (5), French and German (2), Crystallography (Theory and Practice) (2), Laboratory work (2), Machine Drawing (1).

Second Term.—Mechanics (4), Physics (1), Mineralogy (3), Metallurgy (3), German (1), Blow-pipe (1), Laboratory work (3), Machine Drawing (1).

SENIOR CLASS.

First Term.—Applied Mechanics (5), Geology (3), Moral Philosophy

(1), Metallurgy (4), Theory of Adjustments and Engineering Field Work (with practice) (3), Drawing (Contour Map) (1).

Second Term.—Mining (3), Geology (3), Plane Table and Mine Surveying (Theory and Practice) (2), Economic Geology (1), Laboratory Work (3), Steam Engine (2), Drawing (2).

FIFTH YEAR.

First Term.—Mining (4), Descriptive Astronomy (3), Theory of Machines (2), Laboratory Work (3).

SCHOOL OF ANALYTICAL CHEMISTRY.

SECOND CLASS.

Second Term.—Physics (3), German (2), French (3), Pharmaceutical Chemistry (Laboratory) (2), Assaying (Laboratory) (3), Blow-pipe Analysis (1), Drawing (Technical) (1).

JUNIOR CLASS.

First Term.—Physics (5), French and German (2), Crystallography (Theory and Practice) (2), Chemical Philosophy (5), Quantitative Analysis (Laboratory) (5).

Second Term.—Mechanics (2), Physics (1), Mineralogy (Theory and Practice) (3), Metallurgy (2), German (1), Blow-pipe Analysis (1), Chemical Philosophy (5), Quantitative Analysis (5).

SENIOR CLASS.

First Term.—Moral Philosophy (1), Descriptive Astronomy (3), Geology (3), Organic Chemistry (3), Quantitative Analysis (Laboratory) (10).

Second Term.—Geology (3), Medical Chemistry (1), Agricultural Chemistry (1), Chemistry Applied to the Arts (3).

COURSE IN METALLURGY.

SECOND CLASS.

Second Term.—Analytic Geometry (4), Physics (3), German (2), French (3), Blow-pipe (1), Laboratory Work (2), Drawing (1).

JUNIOR CLASS.

First Term.—Differential and Integral Calculus (4), Physics (5), French and German (2), Crystallography (Theory and Practice) (2), Laboratory Work (3), Machine Drawing (1).

Second Term.—Mechanics (4), Physics (1), Mineralogy (3), Metallurgy (3), German (1), Blow pipe (1), Laboratory Work (3).

SENIOR CLASS.

First Term.—Applied Mechanics (5), Geology (3), Moral Philosophy (1), Metallurgy (4), Laboratory Work (3), Theory of Machines (1), Drawing (1).

Second Term.—Geology (2), Economic Geology (1), Steam Engine (2), Machines (2), Laboratory Work (3), Drawing (2).

Note.—In the foregoing Programme of Studies an allowance of time has been made in the last term in each School for the preparation of Thesis,

The University Year.

The University Year is divided into two terms: the first term opens on the first of September, and ends two days before Christmas. The second term opens on the close of the Christmas vacation, and ends on University Day. There is a Christmas vacation of twenty days, and a short Easter vacation, from the Thursday before Easter to Easter Monday. From the twenty-fifth of June to the first of September is the long Summer vacation. All exercises shall be suspended during the hours of Divine service on Ash Wednesday and on Thanksgiving Day. Except on special occasions, there shall be no other vacations during the year.

Daily Exercises.—The bell will be rung daily at ten minutes past eight o'clock, A. M. All the students shall assemble to attend the religious exercises, which will be conducted by the President, or in his absence by one of the Professors in the order of seniority. The arrangement of seats is in alphabetical order; and every student shall retain his seat during the term, unless he receive special permission from the President to change it. All absentees are noted by the University Instructors.

Chapel Exercises.—The exercises in the chapel consist of Scripture reading, sacred music, and prayers, after which there shall be declamation of selected pieces (daily, except Sunday,) by the students in regular routine. This will cause the first hour of recitation or lecture to begin at half-past eight o'clock.

Recitation Hours.—To all lectures each class goes in a body. For purposes of recitation, the classes, according to the number of students in each, are divided into two or more sections, to secure the special attention of the instructor to the daily exercises of each student.

As soon as the students are dismissed from chapel, they proceed in classes or in sections to their recitation rooms, according to an arranged roster.

Study Hours.—Study hours, announced by the ringing of the bell, will begin at seven p. m., during the first term, and at half past seven, p. m., during the second term. During this time, students are required to be in their rooms, unless they receive permission of absence from the President; and they will not leave their rooms again during the night.

Sunday Exercises.— Every student is required to attend Divine service on Sunday morning. The bell will be rung at ten o'clock, a. m., when the students will proceed to the Church of the Nativity, where free seats are provided for them. Any student who presents the written request of his parent, or, who being twenty-one years of age, shall present his own request, that he may attend another place of worship, may receive special permission from the President to do so. Sunday must be observed by a quiet and orderly demeanor.

⁂ It is to be noted that while the University is, by the action of the Founder and the Board of Trustees, placed under the auspices of the Protestant Episcopal Church, no undue influence is brought to bear upon the students contrary to their own religious predilections or the expressed wishes of their parents.

Admission of Students.

Applications for admission into the University should be made to the President, from whom all information may be obtained.

Regular Students.—All applicants for regular standing in the classes or schools must be prepared to pass an examination according to the programme of studies just given. From this it will be seen that a student may be admitted at any time, if able to pass a satisfactory examination in the studies already pursued by his class.

Partial Students.—Any young man of good moral character, and of the required age, may enter as a partial student, selecting such studies as he pleases, with the sanction of the President.

The arrangements for *partial Students* have also special reference to young men who, from the force of circumstances, have not disposition, time or means for a full course, but who desire to gain in a limited time as much technical and practical knowledge as they can in a special department. Among these are many who, while obliged to labor daily, can only devote a small portion of their time to study. Such are invited to come and learn what they can ; and they will have such inducements presented to a continuance and increase of their studies as their earnestness, industry, and proficiency may warrant.

Conditional Students.—Any young man who is partially, but not thoroughly, prepared to enter in full standing in either class, *may be admitted conditionally to make up his deficiencies by extra study under the care of a Professor or Instructor.* When they are made up he will be received into full standing in his class.

Modes of Instruction.—The instruction, in all parts of the University course, is principally by text books, with supplementary lectures. The use of text books enables the student to revise his lessons by reference to his books. All supplementary instructions will be written by the student in his note-book, or problem book, which will be produced at review and examination.

Observatory.

By the liberality of Robert H. Sayre, Esq., one of the Trustees of the University, an Astronomical Observatory has been erected on the University grounds, and placed under the care of the Professor of Mathematics and Astronomy, for instruction of students in Practical Astronomy.

The Observatory contains an Equatorial, by Alvan Clark, of six inches clear aperture, and of eight feet focus; a Zenith Telescope, by Blunt: a superior Astronomical Clock, by William Bond & Sons; a Prismatic Sextant, by Pistor & Martins, and a first class transit instrument.

The Lehigh Junto.

A literary society bearing the name of "The Lehigh Junto" has been organized by the students, and meets weekly. Students are admitted by election. The members of the Board of Trustees and the Faculty are honorary members of the Junto. Besides the weekly meetings, there are public exercises of the society on special occasions.

The Chemical and Natural History Society

OF THE LEHIGH UNIVERSITY.

This society was organized in the fall of 1871, as "The Chemical Society," but was afterwards expanded as its present title indicates, and admits, by election, students from all departments of the University. The reading room is well supplied with scientific periodicals, including eighteen of the principal English and Amercan journals.

The collections of Chemical preparations, and of Botanical and Zoological specimens, belonging to the society, are already important. During the past year parties have been sent to Texas and Brazil to collect specimens for these cabinets.

The society has organized and maintained an annual course of public scientific lectures; during the winter of 1873–4, the third course embraced the following:

"The Giant Planets," by Richard A. Proctor, of London.

"The Land of the Midnight Sun," by Paul B. Du Chaillu, of New York.

"Bessemer Steel," by A. L. Holley, of Brooklyn, N. Y.

"The Gorilla and other Monkeys contrasted with Man," by B. Waterhouse Hawkins, of London.

The annual Oration before the society was delivered June 23, 1874, by Prof. John C. Draper, of New York, on "Alchemy and Chemistry."

The fourth annual course of public lectures during the winter of 1874–5, embraced the following:

"The Deep lying Placers of California," by Prof. Benjamin Silliman, of New Haven, Conn.

"Polarization of Light," by Prof. George L. Barker, of Philadelphia.

"Curiosities of Insect Life," by Prof. Edward S. Morse, of Salem, Mass.

"Artificial Illumination," by Prof. William H. Chandler.

Among the honorary members of the society are more than one hundred of the most distinguished scientists in Europe and the United States.

The Engineering Society

OF THE LEHIGH UNIVERSITY.

This society, established and organized in February, 1873, under the auspices of the Professor of Engineering, is designed especially for the benefit of students in Civil, Mechanical, and Mining Engineering. The meetings are held twice a month, when subjects on Engineering, and other scientific topics, are discussed.

Expenses.

Through the generosity of the Founder, and by a resolution of the Trustees, passed in July, 1871, tuition was declared to be *Free* in all branches and classes.

Books, materials, paper, pencils, chemical materials, used in the analytical laboratory, and instruments, are furnished by the student.

Rooms and board are provided in the University buildings under the following Rules:

1. The amount of room rent, board, &c., for each term must be paid in advance to the Treasurer of the Executive Committee, who will furnish the student with board ticket and key of room.

2. The charge for board and room rent shall be $5.00 per week;

where two students occupy a room jointly the charge shall be $4.50 per week for each.

3. The charge for board without room shall be $4.00 per week. The charge for room rent without board shall be $2.00 per week for each room.

4. These prices include gas and heat.

5. Meal tickets will be furnished by the steward to students or friends visiting them, at 50 cents each, payable in advance to the steward.

6. The choice of rooms shall be in the order of classes; in any class the first applicant to have the first choice.

7. Students may retain their rooms from year to year by giving notice of their intention so to do at the close of the academic year, and by procuring their tickets therefor on or before the first day of the next term.

8. Students are required to keep their rooms in order, or to employ some proper person to do so for them.

9. No furniture for rooms will be provided by the University.

10. The use of kerosene, coal oil, or burning fluid in any of the buildings is prohibited.

Diplomas and Certificates.—The Diploma is given only to those who have passed the regular course in the Classes and one of the Schools. For all partial courses, a certificate is given of what the student has accomplished.

The fee for the diploma on graduation in any of the Schools is $10; payable before receiving it.

GRADUATING ESSAYS.

Every student, in each of the Schools, will be required to present a written essay or thesis upon some topic connected with his special school, as a necessary portion of the exercises for his final examination for a diploma. These essays shall be accompanied by drawings and diagrams, when the subject needs such illustration. The originals will be kept by the University, as a part of the student's record, for future reference; but a copy may be retained by the student, and be published, permission being first obtained from the President.

UNIVERSITY-DAY AND EXHIBITIONS.

The day following the close of the Annual Examination shall be known as University Day. Upon this day the "Annual Exhibition of Graduates" shall take place in the University Chapel, in the presence of the Trustees, Faculty, and invited guests. The exercise shall consist of orations by Junior and Senior Schoolmen, and an address to the students by the President or some other member of the Faculty. Every student must perform the duty assigned to him, unless excused by the President.

On some other day, annually appointed, the University Oration will be pronounced by some distinguished person invited to do so.

The University Sermon will be preached on the Sunday before University Day, under the direction of the President.

RESIDENT GRADUATES.

A limited number of graduates, who desire to pursue their studies under the general direction of the Faculty, may be allowed the use of the Library, and may attend the lectures in any of the departments, during a term of three years, free of expense. Although not bound by University hours, they will be required to obey the directions of the President, and of the Professors in reference to their departments; will board and lodge only in places sanctioned by the President, and will have their names placed upon the Annual Register.

PRIZE TO BE AWARDED IN 1875.

A gold medal for the best essay in the Second Class. Subject: "*The Lehigh Valley.*" The medal is the gift of Charles Brodhead, Esq.

AWARD ON UNIVERSITY-DAY.

The Wilbur Scholarship (value $200) was awarded to Charles L. Taylor, of the Second Class.

THE UNIVERSITY SERMON

Was preached in the Church of the Nativity, on Sunday, June 7th, by the Rev. John M. Leavitt, D.D., of New York.

Students.

SENIOR SCHOOLMEN.

C. E., Civil Engineering.
M. E., Mechanical Engineering.
E. M., Engineer of Mines.
A. C., Analytical Chemistry.
G. L., General Literature.

Name.	School.	Address.
Charles J. Bechdoldt,	C. E.	South Bethlehem.
Antonio M. Cañadas,	A. C.	Quito, Ecuador.
John G. Halbach,	G. L.	Catasauqua.
W. Arthur Lathrop,	C. E.	Springville.
Arthur E. Meaker,	"	Hawleyton, N. Y.
Joseph Morrison, Jr.	"	Glendon.
Frank S. Pecke,	"	Richfield Springs, N.Y.
E. Warren Sturdevant,	G. L.	Wilkes-Barre.
E. H. Williams, Jr., B.A.,	A. C.	Philadelphia.
Carl F. Zogbaum,	C. E.	Germantown.
A.W. Sterner,	Special.	Bursonville.

JUNIOR SCHOOLMEN.

Frank C. Angle,	C. E.	Danville.
Wm. B. Baldy,	"	"
James D. Carson,	"	Toledo, O.
John Cox,	A. C.	South Bethlehem.
Levan Dannenhauer,	"	Allentown.
John A. Evans,	C. E.	San Diego, Cal.
Thos. W. Frederick,	M. E.	Catasauqua.
Frank Gilman, B.A.,	C. E.	Churchville, N. Y.
Wm. Griffith,	C. E.	Pittston.
J. C. Guimaraes,	"	San Paulo, Brazil.
Frank Johnston,	A. C.	Bethlehem.
R. W. Mahon,	C. E.	Columbia.

C. W. McFarlane,	C. E.	Chestnut Hill.
J. J. da Gama Malcher,	M. E.	Para, Brazil.
M. Joseph Nowlan,	A. C.	Philadelphia.
Wm. L. Rader,	C. E.	Wilkes-Barre.
C. W. Ed. Reichel,	"	Bethlehem.
Walter P. Rice,	"	Cleveland, O.
Henry Richards,	E. M.	Dover, N. J.
Louden W. Richards,	M. E.	Columbia.
A. W. Sterner,	Special.	Bursonville.
Charles L. Taylor,	E. M.	Philadelphia.

SECOND CLASSMEN.

Philip S. Bolton,	C. E.	West Chester.
Thos. G. Budington,	E. M.	Brooklyn.
T. Fred. Carter,	C. E.	Frankford, Ky.
George G. Convers,	A. C.	Zanesville, O.
John Eagley,	C. E.	Springfield.
Jacob C. A. Fox,	A. C. Special	Minersville.
Thos. W. Frederick,	M. E.	Catasauqua.
Andrew F. Freis,	C. E.	West Point, N. Y.
John G Forsyth,	"	Treverton.
Percival Giess,	"	Bethlehem.
Andrew M. Glassell,	"	Bowling Green, Va.
J. C. Guimaraes,	"	San Paulo, Brazil.
Arthur P. Hamer,	G. L.	Wheeling, Va.
George M. Heller,	C. E.	Philadelphia.
Henry S. Jacoby,	"	Springtown.
F. H. Jordao,	"	San Paulo, Brazil.
Frank J. Kramer,	Special	Palmyra.
Joseph P. Lance,	A. C.	Norfolk, Va.
James F. Marsteller,	C. E.	Seidersville.
J. W. McComas,	"	Cincinnati.
S. Miyahara,	"	Kayoshima, Japan.
Fred. D. Owen,	"	Hartford, Conn.
W. P. Palmer,	G. L.	Brooklyn, L. I.
Julian Pettee,	C. E.	Bethlehem, Pa.
Charles R. Rauch,	A. C.	"
C. W. Ed. Reichel,	C. E.	"

Wm. J. Renniman,	A. C.	
Fred. T. Shultz,	Special.	Bethlehem.
John Schaid,	C. E.	Louaconing, Md.
C. E. Stewart,	"	Lancaster.
Fred. M. Warner,	A. C.	Jersey City, N. J.
Francis Weiss,	"	Bethlehem.
S. Geo. W. Wickersham,	C. E.	Philadelphia.
Lewis T. Wolle,	"	Bethlehem.

FIRST CLASSMEN.

Lester J. Barr,	Erie, Pa.
Lawrence Beckel,	Bethlehem.
Philip S. Bolton,	West Chester.
T. W. Brown,	Wilkes-Barre.
Charles Bull,	Buffalo, N. Y.
Henry M. Byllesby,	Allentown.
James B. Camp,	Norfolk, Va.
T. Fred. Carter,	Frankford, Ky.
Thos. C. Church,	Oil City.
M. W. De Mesa,	New York City.
Alfred L. Drake,	South Bethlehem.
J. W. Eckert,	Allentown.
C. K. Field,	Ashtabula, O.
Andrew F. Freis,	West Point, N.Y.
J. E. Gilbert,	Winchester, Va.
J. M. Greene,	Wyoming, Ill.
E. S. Hammatt,	Rochester, N.Y.
Wm. S. Hazlett,	Zanesville, O.
Geo. W. D. Hope,	Bethlehem.
John Hubbard,	Ashtabula, O.
Henry Huettig,	Bethlehem.
P. T. Jenkins,	Washington, D.C.
F. H. Jordao,	San Paulo, Brazil.
Frank J. Kramer,	Palmyra.
Joseph Lafon,	Newark, N.J.
N. Lafon, Jr.,	Lexington, Ky.
Clarence C. Lance,	Norfolk, Va.
H. K. Lyon,	Springfield, N.J.

J. C. da Gama Malcher,	Para, Brazil.
Chas. J. Mead,	Hyde Park, N.Y.
J. W. McComas,	Cincinnati, O.
S. Miyahara,	Kayoshima, Japan.
Allen Miller,	Bethlehem.
J. Moriarty,	South Bethlehem.
Robert S. Myers,	Hazleton.
Chas. E. Netscher,	South Bethlehem.
G. A. Nixon,	Covington, Ky.
B. B. Nostrand, jr.,	Sands Point, N. Y.
Milnor Paret,	Williamsport,
H. F. J. Porter,	Morristown, N. J.
Murtha P. Quinn,	South Bethlehem.
W. K. Randolph,	Evergreen (Avoyelles Parish) La.
Wm. J. Renniman,	Scranton.
Chas. E. S. Sayre,	Mauch Chunk,
John Shaid,	Louaconing, Md.
Fred. T. Shultz,	Bethlehem.
A. W. Sterner,	Bursonville.
Paul Suess,	South Bethlehem.
S. Geo. W. Wickersham,	Philadelphia.
H. C. Wilson,	Brooklyn, L. I.
Wm. S. Winterstien,	Bethlenem.
Edgar M. Worman,	South Bethlehem.

Graduating Theses of the Class of 1874.

IN CIVIL ENGINEERING.

1. Review of Pumping Engine No. 3 of the Brooklyn Water Works.
   CASPER W. HAINES, A. B.

2. Review of the Dam of the Williamsburg Reservoir, together with a special investigation of the laws which should govern the Construction of Earthen Dams.
   WM. D. HARTSHORNE.

3. Review of the Collective System of the Jersey City Water Works.
   ALLAN A. HERR.

4. Review of the Bridge crossing the Susquehanna River at Pittston, on the line of the D., L. & W. R. R.
   W. MARSHALL REES.

IN GENERAL LITERATURE.

1. Comparative Intellect.
   SMITH V. WILSON.

IN ANALYTICAL CHEMISTRY.

1. Reading Artesian Spring.
   O. W. JENKS.

2. Determination of Phosphorus in Pig Iron.
   RODOLPHUS KENT, Jr.

3. Artificil Formation of Gahnite.
   G. HERBERT P. STEARNS.

Calendar.

FIRST TERM.

Opened Monday, September 2, 1872.

Christmas Vacation begins at 12 o'clock on Tuesday, December 22, 1874, and ends at 12 o'clock on Tuesday, January 12, 1875.

First Term ends on Tuesday, December 22.

SECOND TERM.

Opens Tuesday, January 12, 1874.

Easter Vacation begins on Thursday, March 25, at 12 M., and ends on Monday, March 29, 1874, at 12 M.

The Annual Examination opens on Monday, June 7, and ends on Wednesday, June 23, 1875.

"UNIVERSITY DAY"—Thursday, June 24, 1875.

Summer Vacation begins on Friday, June 25, and ends on Wednesday, September 1, 1875, when the new Academic Year begins.

Prize Essay, Second Class, to be handed in before June 14.

Students examined for admission into the University from the 16th to the 18th of June, and on the 30th and 31st of August. Applicants are particularly desired to present themselves in June.

University Sermon,—June 20.

The Lehigh University.

"HOMO MINISTER ET INTERPRES NATURÆ."

ANNUAL EXERCISES,

JUNE, 1874.

FOUNDED BY ASA PACKER.

ORDER OF THE ANNUAL EXAMINATION, 1874.

SENIOR SCHOOLMEN.

SATURDAY,	JUNE	6	Quantitative Analysis	8½ to 11½	PROF. CHANDLER.
"	"		Elements of Construction	11½ to 12½	PROF. McMILLAN.
MONDAY,	"	8	Roofs and Bridges	9½ to 10½	PROF. McMILLAN.
TUESDAY,	"	9	French	8½ to 9½	MR. RINGER.
FRIDAY,	"	12	Theory of the Steam-Engine	8½ to 9½	PROF. McMILLAN.
"	"		Stability of Structures	10½ to 11½	MR. RICE.
MONDAY,	"	15	Latin	2 to 4	MR. ASHMORE.
THURSDAY	"	18	Practical Astronomy	8½ to 10½	PROF. HERR.

JUNIOR SCHOOLMEN.

SATURDAY,	JUNE	6	Quantitative Analysis	8½ to 11½	PROF. CHANDLER.
MONDAY,	"	8	Assaying	8½ to 9½	PROF. CHANDLER.
"	"		Meteorology	10½ to 11½	PROF. HARDING.
TUESDAY,	"	9	Greek	9½ to 10½	MR. ASHMORE.
"	"		Latin	10½ to 11½	MR. ASHMORE.
THURSDAY,	"	11	Mineralogy	8½ to 11½	PROF. FRAZIER.
"	"		German	2 to 4	MR. RINGER.
MONDAY,	"	15	Engineering Field Work	8½ to 9½	PROF. McMILLAN.
TUESDAY,	"	16	Mechanics (Weisbach) (1st sec.)	8½ to 10½	PROF. HARDING.
WEDNESDAY,	"	17	Metallurgy (1st sec.)	8½ to 12½	PROF. FRAZIER.
THURSDAY,	"	18	French	11½ to 12½	MR. RINGER.
"	"		Mechanics (Weisbach) (2d sec.)	2 to 4	PROF. HARDING.
FRIDAY,	"	19	Metallurgy (2d sec.)	8½ to 12½	PROF. FRAZIER.
"	"		Mechanics (Weisbach) (3d sec.)	2 to 4	PROF. HARDING.
SATURDAY,	"	20	Metallurgy (written)	8½ to 11½	PROF. FRAZIER.
MONDAY,	"	22	Mechanics (Weisbach) (4th sec.)	2 to 4	PROF. HARDING.

SECOND CLASS.

SATURDAY,	JUNE	6	Qualitative Analysis	8½ to 12½	PROF. CHANDLER.
MONDAY,	"	8	Heat	2 to 5	PROF. HARDING.
TUESDAY,	"	9	Greek	9½ to 10½	MR. ASHMORE.
"	"		Latin	10½ to 11½	MR. ASHMORE.
WEDNESDAY,	"	10	Mechanics (Peck)	2 to 4	MR. FRITH.
MONDAY,	"	15	Analytical Geometry	9½ to 12½	PROF. HERR.
TUESDAY,	"	16	Blowpipe (1st sec,)	8½ to 11¾	PROF. FRAZIER.
"	"		Blowpipe (2d sec.)	2 to 5	PROF. FRAZIER.
SATURDAY,	"	20	German	8½ to 11½	MR. RINGER.
MONDAY,	"	22	French	8½ to 10½	MR. RINGER.
TUESDAY,	"	23	History	2 to 4	THE PRESIDENT.

FIRST CLASS.

WEDNESDAY,	JUNE	10	Algebra (1st sec.)	8½ to 10½	PROF. HERR.
"	"		Algebra (2d sec.)	10½ to 12½	PROF. HERR.
SATURDAY,	"	13	Trigonometry (1st sec.)	8½ to 10½	PROF. HERR.
"	"		Trigonometry (2d sec)	10½ to 12½	PROF. HERR.
"	"		Logic	2 to 4	MR. ASHMORE.
WEDNESDAY,	"	17	Chemistry	8½ to 12½	PROF. CHANDLER.
FRIDAY,	"	19	Mathematics (written)	8½ to 11½	PROF. HERR.
"	"		Latin and Greek	2 to 4	MR. ASHMORE.
SATURDAY,	"	20	Chemistry	8½ to 12½	PROF. CHANDLER.
MONDAY,	"	22	French	10½ to 12½	MR. RINGER.
TUESDAY,	"	23	German	8½ to 12½	MR. RINGER.

PREPARATORY CLASS.

THURSDAY,	**JUNE**	**11...History**	11½ to 12½	MR. FRITH.
FRIDAY,	"	**12...Geometry**	8½ to 11½	PROF. HERR.
WEDNESDAY,	"	**17...Algebra**	8½ to 11½	PROF. HERR.
FRIDAY,	"	**19...Mathematics** (written)	8½ to 11½	PROF. HERR.
TUESDAY,	"	**23...Latin**	2 to 3	MR. ASHMORE.

Applicants for admission to the University will be examined on Wednesday the 17th, Thursday the 18th, and Friday the 19th.

EXAMINATION OF DRAWINGS.

All Drawings will be handed in on or before Saturday, June 13th.

THE ANNUAL ORATION

Will be pronounced before "The Chemical and Natural History Society" in Packer Hall on Tuesday evening, June 23d, at 8 o'clock, by PROF. JOHN C. DRAPER, of New York. Subject:—"ALCHEMY AND CHEMISTRY."

THE THESES

Of the Senior Schoolmen will be read on Wednesday morning, June 24th, at 8.30 o'clock, as follows:

IN CIVIL ENGINEERING.

1. Review of Pumping Engine No. 3 of the Brooklyn Water Works.

CASPAR W. HAINES, A. B.

2. Review of the Dam of the Williamsburg Reservoir, together with a special investigation of the laws which should govern the Construction of Earthen Dams.

WM. D. HARTSHORNE.

3. Review of the Collective System of the Jersey City Water Works.

ALLAN A. HERR.

4. Review of the Bridge crossing the Susquehanna River at Pittston, on the line of the D. L. & W. R. R.

W. MARSHALL REES.

IN GENERAL LITERATURE.

1. Comparative Intellect.

SMITH V. WILSON.

IN ANALYTICAL CHEMISTRY.

1. Reading Artesian Spring.

O. W. JENKS.

2. Determination of Phosphorus in Pig Iron.

RODOLPHUS KENT, JR.

3. Artificial Formation of Gahnite.

G. HERBERT P. STEARNS.

UNIVERSITY DAY,

THURSDAY, JUNE 25, 1874,

HALF-PAST TWO O'CLOCK, P. M.

ORDER OF EXERCISES.

—— MUSIC. ——

READING OF SCRIPTURE AND PRAYER............**Rt. Rev. M. A. De W. Howe, D.D.LL.D.**,
President of the Board of Trustees.

—— MUSIC. ——

PUBLIC STATION..**Smith V. Wilson**, Clearfield, Pa.

—— MUSIC. ——

THE SELF-ENCHANTED..**Oliver W. Jenks**, Philadelphia.

AWARD OF PRIZES.

THE BRODHEAD MEDAL AND THE WILBUR SCHOLARSHIP.

—— MUSIC. ——

THE MANAGEMENT OF MONEY...........................**Arthur E. Meaker**, Hawleytown, N. Y.

THE NEW PROFESSIONS (excused).........................**Edward H. Williams, Jr., A.B.**, Phila.

—— MUSIC. ——

SOCIOLOGICAL GLIMPSES.......................................**W. D. Hartshorne**, Brighton, Md.

ADDRESS, AND DEGREES CONFERRED BY THE PRESIDENT.

—— MUSIC. ——

BENEDICTION.

—— MUSIC. ——